UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/887,888	06/22/2001	Thomas G. Fall	SJ-96055	8013

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EXAMINER
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ART UNIT	PAPER NUMBER
2133	3

DATE MAILED: 08/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-18* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-18* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____ .

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

U.S. Patent and Trademark Office
PTOL-326 (Rev. 04-01)
          Office Action Summary
          Part of Paper No. 3

DETAILED ACTION

Specification

1.   The abstract of the disclosure is objected to because in line 2, "sampled in threads" apparently should be "sampled and placed into threads"; in lines 3-4, "interval of the bursts of data" apparently should be "durations of bursts of noise in the data; in lines 4-5, "mixed with symbols of the divided data stream that have a fixed time separation" apparently should be "mixed with symbols of the divided data stream, next to symbols that have a fixed time separation". Correction is required. See MPEP § 608.01(b).

2.   The disclosure is objected to because of the following informalities:

On page 1: in lines 5-7, error "bursts" are treated as being synonymous with "random errors", which contradicts standard terminology in the art.

On page 14: in line 9, "sampled in threads" apparently should be "sampled and placed into threads" based on, *e.g.*, lines 13-14 "the same symbol is included in more that (sic) one of the threads", however the intended scope of a "sample" and a "thread" is unclear in the context provided; in line 10, "bursts" apparently should be "noise bursts"; in line 14, "that one" apparently should be "than one".

On page 17: in line 7, "transmission stream 19" apparently should be "transmission stream 13"; in lines 16-17, a FIFO queue 14 is described as a "stack", although the term "stack" in standard terminology is customarily associated with a FILO queue.

On pages 17-18, numerous references to Fig 4a as showing a "device 10"

appear to be inaccurate, as Fig. 4a apparently shows a processing flow, rather than a

"device". Page 19 has numerous references to a "method 10", instead.

On page 18: in line 8, "it's" apparently should be "its"; in line 22, "place"

apparently should be "placed".

On page 19: in lines 8 and 22, "sampled 22 in threads" apparently should be

"sampled 22 and placed into threads"

It is unclear what constitutes a "thread" in the context provided. On page 17, line

37 states, "(e)ach of these stacks 14 represents a thread", however only one item 14 is

shown, and page 16, line 15 indicates that "14" is a processor wherein "(e)rror detection

and correction computations are performed". The registers 11 appear to have the

closest correspondence to a "thread", however there appear to be exceptions to a one-

to-one correspondence between threads and registers, e.g. on page 16, lines 32-33,

"two registers may be used to take every other symbol of a thread".

Appropriate correction is required.

Drawings

3.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show

every feature of the invention specified in the claims. Therefore, the "threads" must be

shown or the feature canceled from the claims. No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the

Office action to avoid abandonment of the application. The objection to the drawings

will not be held in abeyance.

4.   The drawings are objected to because in Fig. 5, step 22, "IN THREADS"

apparently should be "AND PLACED INTO THREADS". A proposed drawing correction

or corrected drawings are required in reply to the Office action to avoid abandonment of

the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

6.   Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

In claim 1: in line 1, "noisy" apparently should be "bursty" to agree with claims 2

and 3; in line 4, "sampling the divided data stream in threads, wherein samples are

taken at fixed intervals" apparently should be "sampling the divided data stream,

wherein samples are taken at fixed intervals, and placing the samples into threads"; in

lines 6-7, "mix the correction symbol with data symbols that have fixed time separation"

is vague and apparently should be "mix correction symbols with data symbols, inserting

the correction symbols next to data symbols that have fixed time separation", as all of

the data symbols are otherwise apparently in the "mix", not just symbols that have "a fixed time separation".

In claims 4 and 13: "wherein the incoming data stream comprises symbols in the form of bits" apparently should be "wherein the symbols are in the form of bits" to agree with claims 1 and 10, which do not recite an "incoming data stream".

In claims 5 and 14: "wherein the incoming data stream comprises symbols in the form of bytes" apparently should be "wherein the symbols are in the form of bytes" to agree with claims 1 and 10, which do not recite an "incoming data stream".

In claims 6 and 15: "wherein the incoming data stream comprises symbols in the form of words" apparently should be "wherein the symbols are in the form of words" to agree with claims 1 and 10, which do not recite an "incoming data stream".

In claims 7 and 16: "interval of the bursts of data" apparently should be "intervals of error bursts caused by the noisy channel".

In claims 8 and 17: "performing cyclic redundancy check error correction" apparently should be "performing error correction with a cyclic redundancy check".

In claims 9 and 18: "is" apparently should be deleted.

In claim 10: in line 1, "noisy" apparently should be "bursty" to agree with claims 11 and 12; in line 3, "copying each data symbol that is to be transmitted" apparently should be "receiving an incoming data stream; copying each data symbol that is to be transmitted" to agree with claims 13-15; in line 5, "positions between each data symbol" apparently should be "positions between the data symbols".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8.   Claims 1, 4-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by

U.S. Patent No. 5,432,787 to Chethik (hereafter Chethik).

Chethik discloses a coding arrangement for correcting errors in transmitted

packets. Loading packets into a transmit packet buffer (34) involves "dividing a data

stream into symbols" to be placed in respective buffer storage locations. When a

packet is in position (42) within the buffer, it is "sampled" to a summing array (44-50) in

a packet-sized "thread". Thus Chethik shows "sampling the divided data stream in

threads, wherein samples are taken at fixed time intervals". A MUX (36) enables

"inserting a correction symbol into the data stream to mix the correction symbol with

data symbols that have a fixed time separation". Chethik's coding system is for

"transmitting the data stream". At a receiver for the data encoded in Chethik's system,

there is to provided the steps of "receiving the transmitted data stream", "performing

error detection and correction computation on the data and error correction symbols"

and "outputting the error corrected data".

Regarding claims 4-6, Chethik's buffer data is organized as bits, bytes, and

packet-long "words".

Regarding claim 8, Chethik's coding is a form of longitudinal redundancy check (LRC), which is a type of CRC.

9.   Claims 1 and 3-8 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,546,474 to Sako *et al* (hereafter Sako)..

Sako discloses a coding arrangement for correcting errors in compact disk data. Applying words to a first interleaver/coder combination (1,8) involves "dividing a data stream into symbols". When a word is in position to be applied to the first interleaver/coder combination, it is "sampled" by the interleaver/coder combination in a word-sized "thread". Thus Sako shows "sampling the divided data stream in threads, wherein samples are taken at fixed time intervals". Forming the final CIRC words involves "inserting a correction symbol into the data stream to mix the correction symbol with data symbols that have a fixed time separation". Sako's coding system is for "transmitting the data stream". At a decoder for the data encoded in Sako's system, there is to provided the steps of "receiving the transmitted data stream", "performing error detection and correction computation on the data and error correction symbols" and "outputting the error corrected data".

Regarding claims 4-6, Sako's data is organized as bits, bytes, and words.

Regarding claim 7: error bursts in Sako's decoded data may be only a few bytes in length, or longer.

Regarding claim 8, Sako's coding is a form of Reed-Solomon coding, which is a type of CRC.

Claim Rejections - 35 USC § 103

10.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

11.   Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chethik.

Chethik does not disclose sending the packets on a satellite link. Official Notice

is given that the advantages of relaying packets on a satellite link were well known at

the time the invention was made. It would have been obvious to a person having

ordinary skill in the art to apply Chethik's coding system to transmissions to be relayed

on a satellite link. Such an application would have been obvious because the

advantages of relaying packets on a satellite link were already well known.

Allowable Subject Matter

12.   Claims 10-18 would be allowable if rewritten or amended to overcome the

rejections under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Conclusion

13.   The prior art made of record and not relied upon is considered pertinent to
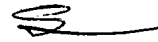
applicant's disclosure.

14.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Stephen M. Baker whose telephone number is (703)

305-9681. The examiner can normally be reached on Monday-Friday (11:00 AM - 7:30

PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Albert DeCady can be reached on (703) 305-9595. The fax phone number

for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

3800.

Stephen M. Baker
Primary Examiner
Art Unit 2133

smb